

address the problem of reducing the power required to provide synchronization between mobile terminals, but rather addresses the problems of improving the signal-to-noise (S/N) ratio and channel capacity of a CDMA communication system.

In addition, as the problems addressed by the present invention derive from the shortcomings of the disclosed prior art, the Applicant respectfully submits that there would be no incentive to seek to combine the teachings of Tanaka with the disclosed prior art in attempting to solve these problems because of the differences between Tanaka and the disclosed prior art.

The timing signal used in the TDMA communication system of Tanaka has a purpose quite different from that of the pilot signal in the CDMA communication system of the prior art. The TDMA control channel as illustrated in Tanaka is used in the mobile terminals to detect timing information to facilitate communication between the terminal stations and to receive control information from a based station. Specifically, Tanaka teaches in column 2, line 53, "Based on the timing of the downgoing CCH, a control signal and a response signal are intermittently transmitted between the mobile terminals 103 and 104 for handshake". In contrast, the CDMA pilot channel of the prior art is used to detect the base stations and the synchronization timing of a code used to spread the spectrum.

In addition, the pilot signal of the prior art differs from the timing signal of Tanaka in another important respect. The pilot signal of the prior art is combined with the traffic channel signals in a combiner to produce a combined signal for transmission. However, in Tanaka, an intermittent timing signal is transmitted over a predetermined control channel to each mobile terminal. Based on a signal synchronized with this intermittent timing signal, a calling party terminal transmits an intermittent control signal to a called-party terminal, to which the called-party terminal replies with an intermittent response signal. Thus, the timing signal generated by the base station of Tanaka aids in establishing synchronization between mobile terminals by initiating execution of the control signal/response signal sequence by the mobile terminals, but is not combined with the traffic signals to produce a combined signal for transmission, as is the pilot signal of the present invention.

In addition to the above stated differences between the pilot signals of the disclosed prior art and the timing signal of Tanaka, the system operating mode of the disclosed prior art differs from that of Tanaka. Whereas the mobile terminals in Tanaka receive the timing signals from a single base station, within a single cell, to determine the timing used to enable communication between the mobile terminals, the pilot signals of the prior art are received by the mobile stations from a plurality of base stations for comparison of the relative amplitudes to identify handoff boundaries.

Thus, due to the differences between Tanaka and the disclosed prior art, the

Applicant respectfully submits that there would be no incentive to seek to combine the teachings of Tanaka with the disclosed prior art with in attempting to solve the problems addressed by the present invention.

Also, the Applicant respectfully submits that the present invention is non-obvious with respect to the combination of references cited by the Examiner because the CDMA system of the present invention provides important advantages over prior CDMA systems. The transmission by each base station of an intermittent pilot signal having a different timing enables the pilot signals of the separate base stations to be discretized, rather than superimposed, as in the prior art. Thus, no noise is added to any of the transmitted pilot signals, resulting in an improved signal-to-noise ratio. Also, as the pilot signals are transmitted intermittently and with different timings, the interference seen by the traffic channel receive units is diminished. Consequently, a greater number of stations can be accommodated in the same frequency band, i.e., channel capacity is increased. The Applicant respectfully submits that, in view of the above stated differences between the disclosed prior art and the device disclosed in Tanaka, these advantages would not be obvious from any combination of the prior art and Tanaka.

The Applicant respectfully submits that, in view of the differences between the prior art disclosed in the present application and the device disclosed in Tanaka, there would be no reason to seek to combine the prior art disclosed in the present application with the teachings of Tanaka in attempting to solve the problems addressed by the present invention.

In view of the above, the Applicant respectfully submits that the synchronized intermittent transmission of pilot signals from each of a plurality of base stations for the above-stated purposes, is non-obvious with respect to any combination of the disclosed prior art and Tanaka. Thus, the intermittent transmission of a pilot signal in synchronism with other transmitters which transmit pilot signals, as recited in claim 1, is non-obvious in view of any combination of the cited references. Similarly, a receive unit which demodulates pilot signals intermittently transmitted in synchronism with other transmitters which transmit pilot signals, as recited in claim 4, is non-obvious with respect to any combination of the disclosed prior art and Tanaka. Also, a CDMA mobile communication system in a pilot signal is intermittently transmitted in synchronism with other transmitters which transmit pilot signals, as recited in claim 8, is non-obvious in view of any combination of the cited references. Finally, a method of intermittently transmitting a pilot signal in synchronism with other transmitters which transmit pilot signals in a CDMA mobile communication system, as recited in claim 13, is non-obvious in view of any combination of the cited references.

In addition, the Applicant respectfully submits that claims 9-12 constitute

valid further limitations on the matter recited in claim 8, which is non-obvious for the reasons stated above. Furthermore, the Applicant respectfully submits that claims 14-17 constitute valid further limitations on the matter recited in claim 13, which is non-obvious for the reasons stated above.

The Examiner also raises an obviousness objection with respect to claims 6 and 7 in view of the prior art disclosed in the present application in combination with both Tanaka and Marchetto et al., U.S. Patent No. 5,414,734. In response, the Applicant respectfully submits that claims 6 and 7 constitute valid further limitations on the matter recited in claim 4, which is non-obvious for the reasons stated above.

In light of the foregoing remarks, it is believed that all outstanding rejections of record have been overcome. The Applicant respectfully submits that this application should now be in condition for allowance and respectfully request favorable consideration.

Respectfully submitted,

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